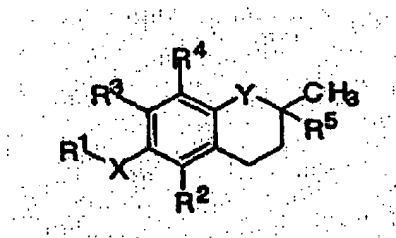


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Replacement Claim Amendment

1. (Currently amended) A method for the treatment of a cell proliferative disease comprising administering to an animal a pharmacologically effective dose of a compound having a structural formula



wherein X is oxygen, nitrogen or sulfur;

Y is oxygen, NH or NCH_2 or NR^6 ;

R^1 is $-(\text{CH}_2)_{1-5}\text{CO}_2\text{H}$, $-(\text{CH}_2)_7\text{CO}_2\text{H}$, $-\text{CH}_2\text{CONH}_2$, $-\text{CH}_2\text{CO}_2\text{CH}_3$, $-\text{CH}_2\text{CON}(\text{CH}_2\text{CO}_2\text{H})_2$, $-(\text{CH}_2)_2\text{OH}$, $-(\text{CH}_2)_3\text{NH}_2\text{Cl}$, or $-(\text{CH}_2)_2\text{OSO}_2\text{NHEt}_3\text{R}^7$, $-\text{C}_{1-4}\text{alkylene-O-C}_{1-4}\text{alkyl}$, $-\text{C}_{1-10}\text{alkylene-CO-SH}$, $-\text{C}_{1-4}\text{alkylene-CO-S}(\text{C}_{1-4}\text{alkyl})$, $-\text{C}_{1-4}\text{alkylene-CS-NH}_2$, saccharide, alkoxy-linked saccharide, $-\text{C}_{1-4}\text{alkylene-CO-NH}_{(2-n)}(\text{C}_{1-4}\text{alkyl})_n$ wherein n is 2 or 1, $-\text{C}_{1-4}\text{alkylene-SO}_2\text{-O}(\text{C}_{1-4}\text{alkyl})$, $-\text{C}_{1-4}\text{alkylene-OSO}_2\text{-O}(\text{C}_{1-4}\text{alkyl})$, $-\text{C}_{1-4}\text{alkylene-OP}(\text{O-C}_{1-4}\text{alkyl})_2$, or $-\text{C}_{1-10}\text{alkylene-CN}$; or

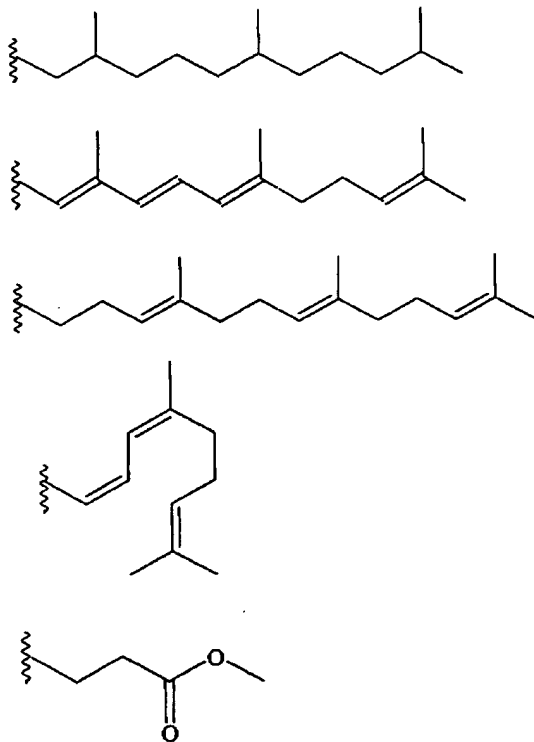
X and R^1 jointly symbolize N-NR^8 ;

R^2 , R^3 and R^4 are independently $-\text{H}$ or $-\text{CH}_3$ hydrogen, $-\text{C}_{1-4}\text{alkyl}$, $-\text{CH}_2(\text{C}_6\text{H}_4)\text{C}_{1-4}\text{alkylene-COOH}$, $-\text{C}_{1-4}\text{alkylene-COO-CH}_2(\text{C}_6\text{H}_5)$, $-\text{C}_{1-4}\text{alkylene-CO-NH-CH}_2(\text{C}_6\text{H}_5)$, saccharide, $-\text{C}_{1-4}\text{alkylene-C-NH}_{(2-n)}(\text{C}_{1-4}\text{alkyl})_n$ wherein n is 2 or 1;

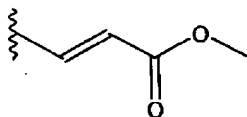
R^4 is $-\text{C}_{1-4}\text{alkyl}$, $-\text{CH}_2(\text{C}_6\text{H}_4)\text{C}_{1-4}\text{alkylene-COOH}$, $-\text{CH}_2(\text{C}_6\text{H}_4)\text{C}_{1-4}\text{alkyl-COOH}$, $-\text{C}_{1-4}\text{alkylenealkyl-COO-CH}_2(\text{C}_6\text{H}_5)$, $-\text{C}_{1-4}\text{alkylenealkyl-CO-NH-CH}_2(\text{C}_6\text{H}_5)$, saccharide, or

$C_{1-4}alkylene-CO-NH_{(2-n)}(C_{1-4}alkyl)_n$ wherein n is 2 or 1;

R^5 is phytyl, $-C_{17}H_{35}$ (unbranched), $-C_{13}H_{27}$ (unbranched), $-C_7H_{15}$ (unbranched), $-CH_3$, $-CO_2H$



or



;

with the proviso that R^1 can not be $-(CH_2)_{2-4}CO_2H$ nor $-(CH_2)_2OH$ when R^2, R^3, R^4 are each $-CH_3$, X and Y are each oxygen and R^5 is phytyl, or a pharmaceutical composition thereof is methyl or R^8 ;

~~R⁶ is hydrogen or C₁₋₄alkyl;~~

~~R⁷ is C₁₋₁₀alkylene COOH, C₁₋₄alkylene CONH₂, C₁₋₄alkylene COO C₁₋₄alkyl,
C₁₋₄alkylene CON(C₁₋₄alkylene COOH)₂, C₁₋₄alkylene OH, C₁₋₄alkylene NH₂ halo or
C₁₋₄alkylene OSO₂NH(C₁₋₄alkyl); and~~

~~R⁸ is C₇₋₁₇alkyl, COOH, C₇₋₁₇olefinic group containing 3 to 5 ethylenic bonds,
C=C COO C₁₋₄alkyl, or C₁₋₄alkylene COO C₁₋₄alkyl; or a pharmaceutical composition
thereof;~~

~~wherein when X and Y are O,~~

~~R¹ is R⁷;~~

~~R², R³ are independently hydrogen or C₁₋₄alkyl;~~

~~R⁴ is C₁₋₄alkyl; and~~

~~R⁵ is R⁸;~~

~~with the proviso that R⁷ can not be C₂₋₄alkylene COOH nor C₂alkylene OH
when R², R³, R⁴ are each methyl and R⁸ is a C₁₆alkyl.~~

2. (Previously presented) The method of claim 1, wherein said compound is selected from the group consisting of 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy hexanoic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy octanoic acid, 2,5,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,7,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,8-dimethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy acetamide, methyl 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy acetate, 2-(N,N-(carboxymethyl)-2(2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-(2RS-(4RS,8RS,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-(carboxy)chroman-6-yloxy))acetic acid, 2,5,7,8-tetramethyl-2R-(2RS,6RS,10-

trimethylundecyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-2R-(2,6,10-trimethyl-1,3,5,9 E:Z decatetraen)chroman-6-yloxy)acetic acid, 3-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)propyl-1-ammonium chloride, 2-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)triethylammonium sulfate, 2,5,7,8-tetramethyl-(2R-(heptyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-(2R-(tridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-(2R-(heptadecyl)chroman-6-yloxy)acetic acid, 2,5,7,8,-tetramethyl-2R-(4,8,-dimethyl-1,3,7 E:Z nonotrien)chroman-6-yloxy)acetic acid, (R)-2[(2,5,7,8-tetramethyl-2-(3 propene methyl ester)chroman-6-yloxy)]acetic acid, 2,5,7,8-tetramethyl-(2R-(methylpropionate)chroman-6-yloxy)acetic acid, 1-aza- α -tocopherol-6-yloxyl-acetic acid, 1-aza- α -tocopherol-6-yloxyl-methyl acetate, 1-aza-N-methyl- α -tocopherol-6-yloxyl-methyl acetate, and 1-aza-N-methyl- α -tocopherol-6-yloxyl-acetic acid.

3. (Previously presented) The method of claim 1, wherein said compound exhibits an anti-proliferative effect comprising apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation.
4. (Previously presented) The method of claim 1, wherein said animal is a human.
5. (Previously presented) The method of claim 1, wherein said composition is administered in a dose of from about 1 mg/kg to about 60 mg/kg.
6. (Previously presented) The method of claim 1, wherein administration of said composition is selected from the group consisting of oral, topical, intraocular, intranasal, parenteral, intravenous, intramuscular, or subcutaneous.
7. (Previously presented) The method of claim 1, wherein said cell proliferative disease is a neoplastic disease, a non-neoplastic disease or a non-neoplastic disorder.
8. (Previously presented) The method of claim 7, wherein said neoplastic disease is selected from the group consisting of ovarian cancer, cervical cancer, endometrial cancer, bladder cancer, lung cancer, breast cancer, testicular cancer, prostate cancer, gliomas, fibrosarcomas, retinoblastomas, melanomas, soft tissue sarcomas, osteosarcomas, leukemias, colon cancer, carcinoma of the kidney, pancreatic cancer, basal cell carcinoma, and squamous

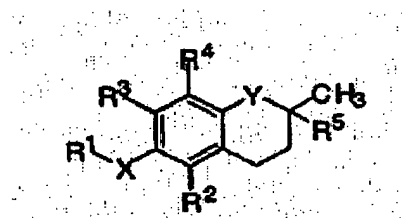
cell carcinoma.

9. (Withdrawn, previously presented) The method of claim 7, wherein said non-neoplastic disease is selected from the group consisting of psoriasis, benign proliferative skin diseases, ichthyosis, papilloma, restinosis, scleroderma, hemangioma, a viral disease, and an autoimmune disease.
10. (Withdrawn, previously presented) The method of claim 9, wherein said autoimmune disease is selected from the group consisting of autoimmune thyroiditis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus, dermatitis herpetiformis, celiac disease, and rheumatoid arthritis.
11. (Withdrawn, previously presented) The method of claim 7, wherein said non-neoplastic disorder is a viral disorder or an autoimmune disorder.
12. (Withdrawn, previously presented) The method of claim 11, wherein said viral disorder is Human Immunodeficiency Virus.
13. (Withdrawn, previously presented) The method of claim 11, wherein said autoimmune disorder is selected from the group consisting of the inflammatory process involved in cardiovascular plaque formation, ultraviolet radiation induced skin damage and a disorder involving an immune component.
14. (Currently amended) A method for the treatment of a cell proliferative disease comprising administering to an animal a pharmacologically effective dose of 6-(2,4-dinitrophenylazo)-2,5,7,8-tetramethyltridecyl)-1,2,3,4-tetrahydroquinoline, 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-3-ene-6-yloxy) acetic Acid or 6-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman) acetic acid.
15. (Previously presented) The method of claim 14, wherein said compound exhibits an anti-proliferative effect comprising apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation.
16. (Previously presented) The method of claim 14, wherein said animal is a human.

17. (Previously presented) The method of claim 14, wherein said composition is administered in a dose of from about 1 mg/kg to about 60 mg/kg.
18. (Previously presented) The method of claim 14, wherein administration of said composition is selected from the group consisting of oral, topical, intraocular, intranasal, parenteral, intravenous, intramuscular, or subcutaneous.
19. (Previously presented) The method of claim 14, wherein said cell proliferative disease is a neoplastic disease, a non-neoplastic disease or a non-neoplastic disorder.
20. (Withdrawn, previously presented) The method of claim 19, wherein said neoplastic disease is selected from the group consisting of ovarian cancer, cervical cancer, endometrial cancer, bladder cancer, lung cancer, breast cancer, testicular cancer, prostate cancer, gliomas, fibrosarcomas, retinoblastomas, melanomas, soft tissue sarcomas, osteosarcomas, leukemias, colon cancer, carcinoma of the kidney, pancreatic cancer, basal cell carcinoma, and squamous cell carcinoma.
21. (Withdrawn, previously presented) The method of claim 19, wherein said non-neoplastic disease is selected from the group consisting of psoriasis, benign proliferative skin diseases, ichthyosis, papilloma, restinosis, scleroderma, hemangioma, a viral disease, and an autoimmune disease.
22. (Withdrawn, previously presented) The method of claim 21, wherein said autoimmune disease is selected from the group consisting of autoimmune thyroiditis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus, dermatitis herpetiformis, celiac disease, and rheumatoid arthritis.
23. (Withdrawn, previously presented) The method of claim 19, wherein said non-neoplastic disorder is a viral disorder or an autoimmune disorder.
24. (Withdrawn, previously presented) The method of claim 23, wherein said viral disorder is Human Immunodeficiency Virus.
25. (Withdrawn, previously presented) The method of claim 23, wherein said autoimmune

disorder is selected from the group consisting of the inflammatory process involved in cardiovascular plaque formation, ultraviolet radiation induced skin damage and disorders involving an immune component.

26. (Currently amended) A method of inducing apoptosis of a cell, comprising the step of contacting said cell with a pharmacologically effective dose of a compound having a structural formula



wherein X is oxygen, nitrogen or sulfur;

Y is oxygen, NH or NCH₃ or NR⁶;

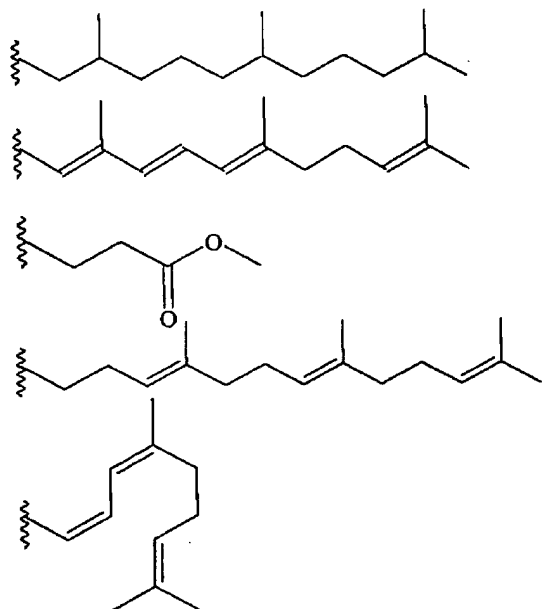
R¹ is ~~-(CH₂)₁₋₅CO₂H, -(CH₂)₇CO₂H, -CH₂CONH₂, -CH₂CO₂CH₃, -CH₂CON(CH₂CO₂H)₂, -(CH₂)₂OH, -(CH₂)₃NH₃Cl, or -(CH₂)₂OSO₃NHET₃R⁷, -C₁₋₄alkylene-O-C₁₋₄alkyl, -C₁₋₁₀alkylene-CO-SH, -C₁₋₄alkylene-CO-S(C₁₋₄alkyl), -C₁₋₄alkylene-CS-NH₂, saccharide, alkoxy-linked saccharide, -C₁₋₄alkylene-CO-NH_(2-n)(C₁₋₄alkyl)_n, wherein n is 2 or 1, -C₁₋₄alkylene-SO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OSO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OP(O-C₁₋₄alkyl)₃, or -C₁₋₁₀alkylene-CN; or~~

~~X and R¹ jointly symbolize N=NR⁹;~~

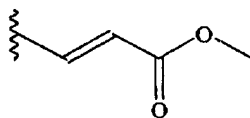
~~R², R³ and R⁴ are independently -H or -CH₃hydrogen, -C₁₋₄alkyl, -CH₂(C₆H₅)C₁₋₄alkylene-COOH, -C₁₋₄alkylene-COO-CH₂(C₆H₅), -C₁₋₄alkylene-CO-NH-CH₂(C₆H₅), saccharide, -C₁₋₄alkylene-C-NH_(2-n)(C₁₋₄alkyl)_n, wherein n is 2 or 1;~~

~~R⁴ is -C₁₋₄alkyl, -CH₂(C₆H₅)C₁₋₄alkylene-COOH, -CH₂(C₆H₅)C₁₋₄alkyl-COOH, -C₁₋₄alkylene-alkyl-COO-CH₂(C₆H₅), -C₁₋₄alkylene-alkyl-CO-NH-CH₂(C₆H₅), saccharide, -C₁₋₄alkylene-CO-NH_(2-n)(C₁₋₄alkyl)_n, wherein n is 2 or 1;~~

R^5 is phytyl, $-C_{17}H_{35}$ (unbranched), $-C_{13}H_{27}$ (unbranched), $-C_7H_{15}$ (unbranched), $-CH_3$, $-CO_2H$.



or



;

with the proviso that R^1 can not be $-(CH_2)_{2-4}CO_2H$ nor $-(CH_2)_2OH$ when R^2 , R^3 , R^4 are each $-CH_3$, X and Y are each oxygen and R^5 is phytyl, or a pharmaceutical composition thereof

is methyl or R^8 ;

R^6 is hydrogen or $-C_{1-4}alkyl$;

R^7 is $-C_{1-10}alkylene-COOH$, $-C_{1-4}alkylene-CONH_2$, $-C_{1-4}alkylene-COO-C_{1-4}alkyl$, $-C_{1-4}alkylene-CON(C_{1-4}alkylene-COOH)_2$, $-C_{1-4}alkylene-OH$, $-C_{1-4}alkylene-NH_2$, halo or

~~-C₁₋₄alkylene-OSO₂NH(C₁₋₄alkyl); and~~

~~R⁸ is C₇₋₁₇alkyl, COOH, C₇₋₁₇olefinic group containing 3 to 5 ethylenic bonds, C=C-COO-C₁₋₄alkyl, or C₁₋₄alkylene-COO-C₁₋₄alkyl; or a pharmaceutical composition thereof;~~

~~wherein when X and Y are O;~~

~~R¹ is R⁷;~~

~~R², R³ are independently hydrogen or C₁₋₄alkyl;~~

~~R⁴ is C₁₋₄alkyl; and~~

~~R⁵ is R⁶;~~

~~with the proviso that R⁷ can not be C₂₋₄alkylene-COOH nor C₂alkylene-OH when R², R³, R⁴ are each methyl and R⁸ is a C₁₆alkyl.~~

27. (Previously presented) The method of claim 26, wherein said compound is selected from the group consisting of 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)hexanoic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)octanoic acid, 2,5,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,7,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,8-dimethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy) acetamide, methyl 2,5,7,8-tetramethyl-2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetate, 2-(N,N-(carboxymethyl)-2(2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid, 2,5,7,8-tetramethyl-(2RS-(4RS,8RS,12-trimethyltridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-

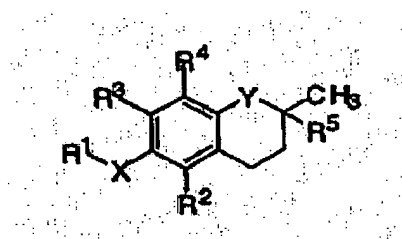
(carboxy)chroman-6-yloxy))acetic acid, 2,5,7,8-tetramethyl-2R-(2RS,6RS,10-trimethylundecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-2R-(2,6,10-trimethyl-1,3,5,9 E:Z decatetraen)chroman-6-yloxy)acetic acid, 3-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)propyl-1-ammonium chloride, 2-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl) chroman-6-yloxy)triethylammonium sulfate, 2,5,7,8-tetramethyl-(2R-(heptyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-(tridecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-(heptadecyl)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-2R-(4,8-dimethyl-1,3,7 E:Z nonotrien)chroman-6-yloxy)acetic acid, (R)-2[(2,5,7,8-tetramethyl-2-(3 propene methyl ester)chroman-6-yloxy)acetic acid, 2,5,7,8-tetramethyl-(2R-(methyl propionate)chroman-6-yloxy)acetic acid, 1-aza- α -tocopherol-6-yloxyl-acetic acid, 1-aza- α -tocopherol-6-yloxyl-methyl acetate, 1-aza-N-methyl- α -tocopherol-6-yloxyl-methyl acetate, and 1-aza-N-methyl- α -tocopherol-6-yloxyl-acetic acid.

28. (Previously presented) The method of claim 26, wherein said method is useful in the treatment of a cell proliferative disease.

29. (Currently amended) A method of inducing apoptosis of a cell, comprising the step of contacting said cell with a pharmacologically effective dose of 6-(2,4-dinitrophenylazo)-2,5,7,8-tetramethyltridecyl)-1,2,3,4-tetrahydroquinoline, 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-3-ene-6-yloxy) acetic Acid or 6-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman) acetic acid.

30. (Previously presented) The method of claim 29, wherein said method is useful in the treatment of a cell proliferative disease.

31. (New) The method for of claim 1, wherein the compound has a structural formula



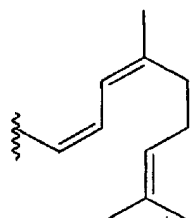
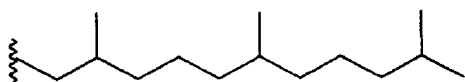
wherein X is oxygen;

Y is oxygen, NH or NCH₃;

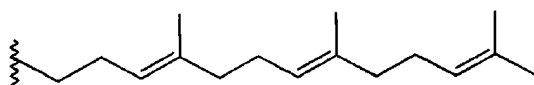
R¹ is -(CH₂)₁₋₃CO₂H, -CH₂CON(CH₂CO₂H)₂, -(CH₂)₃NH₃Cl, or -(CH₂)₂OSO₃NHEt₃;

R², R³ and R⁴ are independently -H or -CH₃;

R⁵ is phytyl, -C₁₇H₃₅ (unbranched),



or



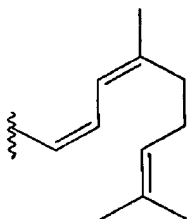
;

with the proviso that R¹ can not be -(CH₂)₂₋₃CO₂H when R², R³, R⁴ are each -CH₃, Y is each oxygen and R⁵ is phytyl, or a pharmaceutical composition thereof.

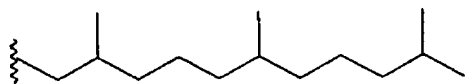
32. (New) The method of claim 31, wherein Y is oxygen in the structural formula for the

compound.

33. (New) The method of claim 31, wherein Y is NH in the structural formula for the compound.
34. (New) The method of claim 33, wherein the compound is 1-aza- α -tocopherol-6-yloxy-acetic acid.
35. (New) The method of claim 31, wherein Y is NCH₃ in the structural formula for the compound.
36. (New) The method of claim 35, wherein the compound is 1-aza-N-methyl- α -tocopherol-6-yloxy-acetic acid.
37. (New) The method of claim 31, wherein R⁵ in the structural formula for the compound is:



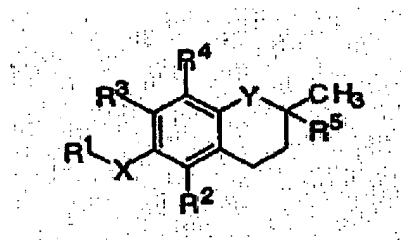
38. (New) The method of claim 37, wherein the compound is 2,5,7,8,-tetramethyl-2R-(4,8,-dimethyl-1,3,7 E:Z nonotrien)chroman-6-yloxy) acetic acid.
39. (New) The method of claim 31, wherein R⁵ in the structural formula for the compound is -C₁₇H₃₅ (unbranched).
40. (New) The method of claim 39, wherein the compound is 2,5,7,8,-tetramethyl-(2R-(heptadecyl)chroman-6-yloxy) acetic acid.
41. (New) The method of claim 31, wherein R⁵ in the structural formula for the compound is:



42. (New) The method of claim 41, wherein the compound is 2,5,7,8-tetramethyl-2R-(2RS,6RS,10-trimethylundecyl)chroman-6-yloxy)acetic acid.
43. (New) The method of claim 31, wherein R^4 is $-\text{CH}_3$ in the structural formula for the compound.
44. (New) The method of claim 31, wherein R^3 is $-\text{H}$ in the structural formula for the compound.
45. (New) The method of claim 44, wherein the compound is 2,5,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.
46. (New) The method of claim 44, wherein the compound is 2,8-dimethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid.
47. (New) The method of claim 31, wherein R^2 is $-\text{H}$ in the structural formula for the compound.
48. (New) The method of claim 47, wherein the compound is 2,7,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.
49. (New) The method of claim 31, wherein, R^1 is $\text{CH}_2\text{CO}_2\text{H}$ in the structural formula for the compound.
50. (New) The method of claim 49, wherein the compound is 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.
51. (New) The method of claim 49, wherein the compound is 2,5,7,8-tetramethyl-(2RS-(4RS,8RS,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.
52. (New) The method of claim 31, wherein, R^1 is $-\text{CH}_2\text{CON}(\text{CH}_2\text{CO}_2\text{H})_2$ in the structural

formula for the compound.

53. (New) The method of claim 52, wherein the compound is 2-(N,N-(carboxymethyl)-2(2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid.
54. (New) The method of claim 31, wherein, R^1 is $-(CH_2)_3NH_3Cl$ in the structural formula for the compound.
55. (New) The method of claim 54, wherein the compound is 3-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)propyl-1-ammonium chloride.
56. (New) The method of claim 31, wherein R^1 is $-(CH_2)_2OSO_3NHEt_3$ in the structural formula for the compound.
57. (New) The method of claim 56, wherein the compound is 2-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl) chroman-6-yloxy)triethylammonium sulfate.
58. (New) The method for of claim 25, wherein the compound has a structural formula



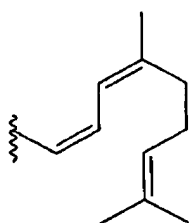
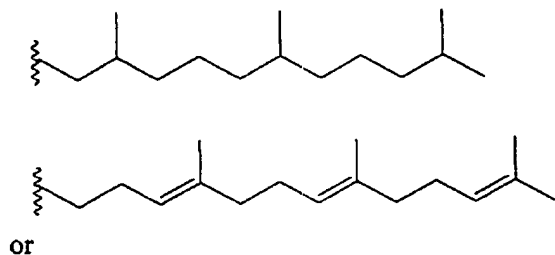
wherein X is oxygen;

Y is oxygen, NH or NCH₃;

R^1 is $-(CH_2)_{1-3}CO_2H$, $-CH_2CON(CH_2CO_2H)_2$, $-(CH_2)_3NH_3Cl$, or $-(CH_2)_2OSO_3NHEt_3$;

R^2 , R^3 and R^4 are independently $-H$ or $-CH_3$;

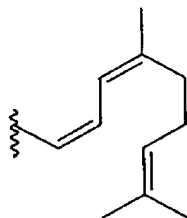
R^5 is phytyl, $-C_{17}H_{35}$ (unbranched),



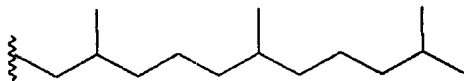
with the proviso that R^1 can not be $-(CH_2)_{2,3}CO_2H$ when R^2, R^3, R^4 are each $-CH_3$, Y is each oxygen and R^5 is phetyl, or a pharmaceutical composition thereof.

59. (New) The method of claim 58, wherein Y is oxygen in the structural formula for the compound.
60. (New) The method of claim 58, wherein Y is NH in the structural formula for the compound.
61. (New) The method of claim 60, wherein the compound is 1-aza- α -tocopherol-6-yloxy-acetic acid.
62. (New) The method of claim 58, wherein Y is NCH_3 in the structural formula for the compound.
63. (New) The method of claim 62, wherein the compound is 1-aza-N-methyl- α -tocopherol-6-yloxy-acetic acid.

64. (New) The method of claim 58, wherein R^5 in the structural formula for the compound is:



65. (New) The method of claim 64, wherein the compound is 2,5,7,8,-tetramethyl-2R-(4,8,-dimethyl-1,3,7 E:Z nonotrien)chroman-6-yloxy) acetic acid.
66. (New) The method of claim 58, wherein R^5 in the structural formula for the compound is $-C_{17}H_{35}$ (unbranched).
67. (New) The method of claim 66, wherein the compound is 2,5,7,8,-tetramethyl-(2R-(heptadecyl)chroman-6-yloxy) acetic acid.
68. (New) The method of claim 58, wherein R^5 in the structural formula for the compound is:



69. (New) The method of claim 68, wherein the compound is 2,5,7,8-tetramethyl-2R-(2RS,6RS,10-trimethylundecyl)chroman-6-yloxy)acetic acid.
70. (New) The method of claim 58, wherein R^4 is $-CH_3$ in the structural formula for the compound.
71. (New) The method of claim 58, wherein R^3 is $-H$ in the structural formula for the compound.
72. (New) The method of claim 71, wherein the compound is 2,5,8-trimethyl-(2R-(4R,8R,12-

trimethyltridecyl)chroman-6-yloxy)acetic acid.

73. (New) The method of claim 71, wherein the compound is 2,8-dimethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid.

74. (New) The method of claim 58, wherein R^2 is $-H$ in the structural formula for the compound.

75. (New) The method of claim 74, wherein the compound is 2,7,8-trimethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.

76. (New) The method of claim 58, wherein, R^1 is CH_2CO_2H in the structural formula for the compound.

77. (New) The method of claim 76, wherein the compound is 2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.

78. (New) The method of claim 76, wherein the compound is 2,5,7,8-tetramethyl-(2RS-(4RS,8RS,12-trimethyltridecyl)chroman-6-yloxy)acetic acid.

79. (New) The method of claim 58, wherein, R^1 is $-CH_2CON(CH_2CO_2H)_2$ in the structural formula for the compound.

80. (New) The method of claim 79, wherein the compound is 2-(N,N-(carboxymethyl)-2(2,5,7,8-tetramethyl-(2R-(4R,8R,12-trimethyltridecyl) chroman-6-yloxy) acetic acid.

81. (New) The method of claim 58, wherein, R^1 is $-(CH_2)_3NH_3Cl$ in the structural formula for the compound.

82. (New) The method of claim 81, wherein the compound is 3-(2,5,7,8-tetramethyl-(2R-(4R,8,12-trimethyltridecyl)chroman-6-yloxy)propyl-1-ammonium chloride.

83. (New) The method of claim 58, wherein R^1 is $-(CH_2)_2OSO_3NHEt_3$ in the structural formula for the compound.

84. (New) The method of claim 83, wherein the compound is 2-(2,5,7,8-tetramethyl-(2R-

(4R,8,12-trimethyltridecyl) chroman-6-yloxy)triethylammonium sulfate.